DOCUMENT RESUME

ED 395 561 IR 017 838

AUTHOR Bisman, J.; And Others
TITLE Occasional Papers in Open and Distance Learning, Number 19.
INSTITUTION Charles Sturt Univ.-Riverina. Wagga Wagga (Australia).
REPORT NO ISSN-1038-8958
PUB DATE Apr 96
NOTE 50p.; For Number 18 in this series, see ED 389 285.
PUB TYPE Collected Works - General (020)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Computer Uses in Education; *Distance Education; Educational Assessment; Educational Planning; *Educational Practices; Educational Technology; Foreign Countries; *Higher Education; Instructional Innovation; Internet; Universities
IDENTIFIERS Australia (Wagga Wagga)

ABSTRACT

This document is a collection of four papers dealing with the issues of technology in higher education, distance education, and assessment practices. The first paper, "Integrating the Internet into Distance Education in Accounting at Charles Sturt University: An Assessment of Potential" (Jayne E. Bisman), explores the impact of the Internet on accounting education and research. It identifies Internet services and capabilities of particular interest to staff in the Faculty of Commerce and notes that Charles Sturt University (CSU) is competitively well placed to pursue innovative opportunities using the powerful capabilities of the Internet. The second paper, "Students' Commitments To Attend Residential Schools" (Dirk H. R. Spennemann), incorporates recent questionnaire data and focuses on the desirability of residential schools including such issues as face-to-face interaction, costs of attendance, and optional residential schools. The third paper, "Computer Information Technology Survey for the School of Agriculture" (Gavin Ash), shows how the School of Agriculture at CSU conducted a survey of computer use as a basis for planning. The fourth paper, "Assessment Practices at CSU" (Peter Donnan), addresses the assessment of students and presents nine practical assessment strategies which are presently being used in a small number of subjects at CSU, but which may have applications in a much broader spectrum of courses. (AEF)

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Occasional Papers

in

Open and Distance Learning

Number 19

Charles Sturt University

April 1996

Produced by the Open Learning Institute
Printed at CSU-Riverina Printery
Charles Sturt University

ISSN 1038-8958

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Editorial

Occasional Papers in Open and Distance Learning, Number 19, contains four papers which are also accessible on the Internet using the following URL address:

http://www.csu.edu.au/division/OLI/oli-rd/oli-rd.htm

In recent years most Australian universities have witnessed the dramatic influence which the Internet has had on learning, teaching and research. The first paper explores the impact of the Internet on accounting education and research. It identifies Internet services and capabilities of particular interest to staff in the Faculty of Commerce and notes that CSU is competitively well placed to pursue innovative opportunities using the powerful capabilities of the Internet. Accounting teachers and researchers may find the extensive range of URL addresses at the end of the paper worth pursuing if they are not already familiar with them. I would also like to invite similar papers in other discipline areas for future editions of *Occasional Papers and Distance Learning*.

The topic of residential schools has surfaced in this publication on a number of occasions. The second paper incorporates recent questionnaire data and it focuses on the desirability of residential schools including such issues as face to face interaction, the costs of attendance and optional residential schools.

Current data about CSU staff/student needs and usage in relation to information technology is a sound basis for planning and implementing university-wide strategies. That is why the third paper is of value: it shows how a particular school, the School of Agriculture, has surveyed computer usage as a basis for planning and it is the type of survey that many readers will find of interest.

The final paper addresses a very familiar topic, assessment of students, and it presents nine practical assessment strategies which are presently being used in a small number of subjects at CSU but which may have applications in a much broader spectrum of courses.

Peter Donnan
Editor

A call for papers

Occasional Papers in Open and Distance Learning is published twice a year, generally in April and November. As the title suggests, a considerable range of issues is appropriate for inclusion within the publication.

The editor would like to invite papers from CSU staff which focus on open and distance learning.

Please submit a copy of any material for publication in the next issue to:

Peter Donnan
Editor
Occasional Papers in Open and Distance Learning
Charles Sturt University
PO Box 588
Wagga Wagga NSW 2678

Please note that if you are typing your paper, the editor can provide an IBM template (Word for Windows) or a printed style guide for contributors using other word processing packages.

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Integrating the Internet into distance education in accounting at Charles Sturt University: An assessment of potential

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Abstract

As publicity and use of the Internet grows, its role as an information gathering, communications, and educational tool is increasingly touted. Despite this growing awareness, there has been little consideration of the role of the Internet in accounting education *per se*, and less still of its potential in accounting education in distance study modes. As a major provider of accounting courses by distance education, and with a strong commitment to the use of contemporary information and communications technology in educational settings, Charles Sturt University is well-placed to lead the way in integrating Internet services into accounting programs.

This paper examines the major services and capabilities of the Internet, providing examples and an assessment of conceivable applications of Internet technology in the context of accounting education.

Accounting education at Charles Sturt University

Charles Sturt University provides flexible entry and study modes for students, and is one of a limited number of recognised specialist distance education centres in Australia (DEET, 1993). The University is a major provider of distance education courses in accounting at both undergraduate and postgraduate levels and is among a select few Australian universities acknowledged for innovative teaching (Ashenden and Milligan, 1994: 89).

A critical component of the University's educational philosophy is the production of graduates which, *inter alia*, demonstrate 'literacy in the application of computers and other technologies' (CSU, 1995: 1). The University's goals, objectives, and strategic priorities also reflect a commitment to flexible course delivery and assessment, teaching and learning methodologies which utilise new information technology and communications media, and the availability of, and equitable access to interactive services, including Internet services, for **all** students (Barnard, Rebbechi and O'Donnell, 1994; CSU, 1995).

These aims are reiterated in the University's *Quality Portfolio* (CSU, 1994a), and are part of the missions and goals of the Faculty of Commerce, responsible for the conduct of the University's accounting programs (CSU, 1994b).

Students' perceptions of accounting course quality at Australian universities are rated reasonably well on certain dimensions and poorly on others, particularly the

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teaching dimension (CQAHE, 1994). Charles Sturt University students' accounting course quality ratings are around the midpoint on each dimension (Athiyaman and O'Donnell, 1994), and overall satisfaction ratings exceed the mean rating for all universities (CSU, 1994a). Employment prospects and graduate starting salaries for Charles Sturt University accounting graduates are much better than those for accounting graduates from most other Australian universities (GCCA, 1993).

Charles Sturt University appears to possess a measure of competitive advantage in relation to accounting programs, which needs to be fostered and sustained. The University has the potential to build upon this reputation by developing and providing exemplary, innovative, accounting curricula. Utilising Internet technology and services within the University's accounting programs is one means to achieve this end.

For a number of years, all distance education students in the Bachelor of Business (Accounting) degree program at the University have been required to have access to an IBM or compatible personal computer. The Master of Accountancy course, designed to build upon previous non-accounting tertiary studies and work experience, features a similar course requirement. Since distance education students already have access to the basic computer hardware required to connect to the Internet, and can dial-in to the University system, it seems logical to capitalise on and exploit these existing facilities.

The Internet, accountants and accounting education

'After IT [Information Technology] specialists, accountants are the most computer literate professionals' (Olivier, 1995: 8), and so it is hardly surprising that an increasing number of accountants are learning to utilise the public global information network known as the Internet (Wade, 1995). Accountants can derive a variety of benefits from using the Internet in their professional life (table 1).

Table 1. Benefits of Internet usage for accountants.

- maintaining **awareness** and understanding of accounting practice and issues
- the low **cost** of obtaining information via the Internet
- **universality** of the Internet, given that it is a global information network
- **ease of access** to accounting and professional information
- **quality** of information
- the **powerfulness** of the Internet as an information gathering and promotional tool
- the **opportunities** the Internet provides

(adapted from Beauchemin & Graves, 1995)

Distance education students can experience feelings of isolation produced by geographic remoteness from the campus (Meacham and Evans 1989). This leads to a variety of other practical problems and disadvantages, such as the inability to readily access libraries (Wood 1995). Integrating Internet technology and services into the delivery of accounting curricula via distance education yields its own series of benefits, which in general alleviate or overcome difficulties related to isolation,

and which reduce the costs and time associated with information gathering and communication.

The Internet offers a variety of services and interactive multimedia (IMM) resources that can be employed within the framework of distance education in accounting. While it is beyond the scope of this paper to provide detailed technical and operational explanations of each of these services and facilities, a brief description of the major services is given to illustrate the potential of the Internet as a teaching and learning tool for accounting.

Internet facilities and technology

The Internet evolved from an experiment conducted in 1969 involving a computer at the University of California passing information to three similarly programmed computers in Utah and California (Jul, 1992). As part of a United States Department of Defence research project, the Internet was seen at the time as a means for keeping channels of communication open in the event of nuclear attack during the Cold War (Cameron, 1994). While such considerations lack contemporary relevance, the communications role of the Internet nevertheless remains firmly established.

Australia connected to the Internet in 1989 through the Australian Academic and Research Network (AARNet), established by the Australian Vice-Chancellors' Committee. The network initially linked universities, research institutions, and government departments. In 1995, AARNet became the Telstra Internet, and remains the principal Internet carrier in Australia (Telstra, 1995), and the primary carrier for academic institutions. In Australia and overseas, the educational and academic institutional framework of the Internet continues to be a major driving force behind its development and enhancement.

The Internet offers an abundance of methods for accessing data and communicating. File Transfer Protocol (FTP) and Telnet facilities were among the earliest methods for accessing Internet information, and other innovations, such as Electronic Mail (e-mail), Newsgroups, Gopher, and Wide Area Information Servers (WAIS), have simplified procedures for communicating, and sharing and accessing data. In 1991, the multimedia capabilities of the World Wide Web (WWW) were introduced to the Internet. Of all Internet services, the WWW is experiencing the fastest growth (Press, 1994). Conceived in 1989 at CERN [1], the European Particle Physics Laboratory, and made publicly available in 1991, the WWW uses a hypertext paradigm featuring text, graphics, audio, and video footage (Porterfield, 1994). The most commonly used capabilities of the Internet are the WWW, FTP, and e-mail (Modemware, 1995), yet for practising accountants, the foremost reasons for connecting to the Internet are likely to be the capabilities offered by e-mail, newsgroups, and business databases (O'Brien, 1994).

Collectively, these Internet technologies and services are capable of playing a key role in the entire educational process, enhancing distance education students' access to accounting information and resources, and their power to communicate with academic staff and with each other (Perron, 1994 [2]; Bruce, 1995).

Accounting education: Resources on the Internet

'Dissemination of information was, of course, one of the original purposes of the Internet itself, and more particularly of the Web' (December & Randall, 1994: 54). The range of information available and useful to accounting students extends beyond that available through any other single source, and ranges from textual resources to multimedia materials.

Library catalogues and databases

There are numerous library resources available for accounting students on the Internet. Specifically, the Internet offers opportunities for conducting literature searches, compiling bibliographies, and engaging in interactive browsing and environmental scanning. 'Most importantly, it [the Internet] may offer resources (such as network-published journals and texts, specialty databases, archives, ...) available from no other source' (Clemen, 1994: 63). Accounting students can be made aware of Internet material relevant to their studies by incorporating relevant information into distance education study materials, whether packaged in electronic or hardcopy form, and by adding Internet addresses for accounting materials to subject-based reference lists.

Traditional text-based library resources comprise a large part of the accounting-related information available via Internet. What distinguishes the Internet from conventional library systems are the search and access procedures that can be employed to find information, as well as the range of libraries and data that can be accessed.

Basic ready reference resources (for example, dictionaries, government statistics, and encyclopaedia) are available via the WWW or telnet facility, and some can be accessed through Gopher [3]. Accounting reference materials, literatures, and resources can be sourced via library databases in Australia and overseas. Regularly updated lists of Online Public Access Catalogues (OPAC) world-wide, that can be accessed via the Internet, are available on the WWW [4], and Hytelnet [5] provides an extensive listing of libraries, commercial and private sector databases, publications and resources available from thousands of sites and servers in the Americas, Europe, Asia, the Pacific, and South Africa. In Australia, Unilinc [6] offers access to the catalogues of a number of university libraries, including Charles Sturt University, as well as providing full-text download services from a range of periodicals databases such as ABI/Inform and Current Contents. Liblink [6], also a network to which Charles Sturt University belongs, provides access to all Australian university libraries and a number of other libraries.

Accounting journals and conference papers

In order to access much of the accounting material available on the Internet, and the WWW in particular, utilisation of a search engine, enabling keyword Boolean-type searches, is necessary. WWW addresses for a number of major search engines are provided in the listing of references for this paper [7]. A search for the keyword 'accounting' can yield several thousand citations depending upon the search engine employed.

Apart from journals and conference papers which are accessible through libraries and searching on-line library catalogues, some are published on-line as well as in

traditional print-based form, while others are only published electronically on the Internet (Mays *et al.*, 1993).

A number of Institute of Management Accountants' research titles are available on the Internet as part of the Rutgers Accounting Web (RAW) in the United States (Freedman, 1995). RAW, together with the Summa Project in the United Kingdom, and ANet in Australia [8], form the International Accounting Network. ANet provides a wealth of bibliographic material, a calendar of future accounting events and conferences, a listing of all known accounting journals in the world, and an international database of accounting academics. In addition to these features, ANet enables users to subscribe, free of charge, to a range of discussion groups and mailing lists in discipline areas such as management accounting, auditing, taxation, and accounting education. The ANet homepage contains a host of links to other WWW accounting sites.[2]

The American Accounting Association has conference papers from a number of years' meetings available via the Internet [9]. The European Accounting Association provides details concerning papers presented at its 1995 conference [10], and the Accounting Association of Australia and New Zealand will be publishing papers on the Internet prior to the commencement of its 1996 Annual Conference. Electronic publications for accountants include the *Internet Bulletin for CPAs* [11], and the *CPA's Internet Reference Guide* [12]. Various publications from the Harvard Business School Publishing Group [13], such as the *Harvard Business Review*, and *Business History Review* can also be previewed on-line.

While it is misleading to conceive of the Internet as the ultimate reference source for education and research (Snyder, 1995), since it remains in its earliest construction phase as a virtual library (Clemen, 1994: 62), with a growing abundance of material being published only in electronic form, it may not be too long before accounting students will be unable to receive a well-rounded education without accessing the Internet for at least some of the material required for their studies.

Accounting Internet sites

The Internet also provides access to a range of other information relevant for accounting students. The Accountant's Hotlist of Internet Sites [14] provides a comprehensive listing of Internet (chiefly WWW) sites specific to the needs of accountants, and is a useful starting point for more comprehensive searches of Internet accounting resources and information.

A number of major accounting professional bodies have Internet sites, and pages on the WWW [15]. These include the American Institute of Certified Public Accountants Forum (AICPA, 1995), CPA OnLine in Australia and the United States (ASCPA, 1995a, 1995b), and the Institute of Chartered Accountants in Australia Forum (ICAA, 1995). The large international accounting firms (the 'Big 6') also feature prominently on the WWW, providing research, commercial, and recruitment and employment information (Canadian Institute of Chartered Accountants, 1995; Young, 1995a) [16].

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[2] For a useful summary of ANet's major features see Asman, Debreceny and White (1995).

Other resources

Accounting students, depending upon the nature of their interests, studies, and assignment tasks, are likely to require access to a wide range of data and information. Examples of these types of materials, available on the Internet, include stock market prices and indexes, and corporate performance profiles (Atley, 1995), as well as conventional business and financial newspapers, such as the *New York Times, and Wall Street Journal* (Liddle, 1995b). There are also Internet published 'newspapers' including the *Electronic Telegraph* [17] and the *Australian Observer* (Liddle, 1995a) [18], which feature commercial and financial information.

Other Internet sites are of academic relevance in terms of both education and research, including those provided by bodies established to promote and disseminate teaching and research information on the Internet. Examples include the Coalition for Networked Information [19], and the Scholarly Communications Project [20]. For accounting academics and students, the Accounting Research Network maintains a variety of material, including free subscription via Internet, to the electronically published *Journal of Accounting Abstracts* [21]. The Network also publishes the weekly *Journal of Financial Abstracts*, and various professional accounting pronouncements. For research students, another organisation, AccPac [22], has been launched to support productive interaction on the Internet among accounting researchers, particularly doctoral candidates.

While the foregoing discussion illustrates the role and usefulness of the Internet as an information gathering tool for accounting students, the Internet is capable of playing a key role in communications for accounting students and their teachers.

Accounting education: Communication and collaboration

Both the technology and services which comprise the Internet provide unique opportunities for designing interesting and innovative accounting programs. There are a number of ways in which the communications potential offered by the Internet can be consolidated into accounting education.

Apart from its informational role, the Internet is above all a powerful communications tool. 'The "collaboratory" concept has recently entered the vernacular of the scientific community to reflect new modes of scientific communication, co-operation and collaboration made possible by information technology' (Robbin, 1995: 37). The Internet offers an expedient method for networking within the accounting research and scholarly community and with the wider business community (Australian Science and Technology Council, 1994). Most Internet facilities, ranging from Internet Relay Chat (IRC), e-mail and Newsgroups, through to Internet videoconferencing, and the Electronic Data Interchange (EDI) possibilities offered by FTP and other services, provide the means for engaging in and simplifying student teamwork efforts, and student or student/teacher collaborative projects.

It is this capacity of the Internet, and of the people who access it, that makes it not merely a network of computers, but a means for achieving the global remote networking of accountants, and accounting students and academics. The Internet offers a particularly affordable means for engaging in national or international collaborative study or research projects, and has been used in this capacity in a variety of disciplines (Perry, 1995; Yakimovicz and Murphy, 1995). The Internet

exposes opportunities for internal and distance education (including off-shore) students to form co-operative formal, and informal groups and networks.

There is likely to be largely undervalued potential for students and their teachers, regardless of geographic location, to network effectively and affordably with each other by using Internet services. Internet features, such as e-mail, aim to supplement the data access capabilities of the technology by providing electronic correspondence media. Newsgroups, an extension of the e-mail concept, represent discussion groups and forums, and there are numerous accounting newsgroups currently in existence (Williams, 1995). Messages can be 'posted' to a newsgroup for an indeterminate number of subscribers to access and provide responses, and engage in debate. IRC enables users to engage in on-line real-time text-based conversations. IRC and other 'chat' facilities, such as MESH programs (that can be telnetted to), and direct computer system-to-system talk requests, overcome the need to wait for responses, in contrast to the capabilities of e-mail and Newsgroups. The text-based conversation presents possibilities for providing individualised instruction which may be particularly useful for postgraduate accounting students and their supervisors. IRC and similar 'chat' facilities also provide a multi-user arena for collaborative learning, particularly in distance education scenarios (Poon, 1993).

Recent enhancements to traditional Internet 'chat' capabilities include the Internet phone and Internet videoconferencing. The Internet phone provides for real-time voice conversations utilising Internet (rather than telephone) technology. Users require only the relevant software, a personal computer with Internet (SLIP/PPP) access, a soundcard, and a microphone. CU-See-Me [23] allows for Internet videoconferencing featuring full audio, and black and white video image. A one-to-one videoconference requires only the software, a personal computer with Internet access, a camera, soundcard, and microphone. These capabilities would allow teachers to include a range of multimedia audio or visual aids to supplement instruction and tuition, and could greatly reduce the constraints of time, cost, and geographic location usually imposed by other educational and communications media.

Commercialisation of the Internet

The increasing commercialisation of the Internet will affect the nature of the information provided and the manner in which the Internet is used in education, and particularly in business and accounting education. Rapid advances in commercialisation of the Internet involve a number of basic issues. Firstly, there is an increasing amount of business and commercial EDI traffic (Garner, 1994; Ryrie, 1994) which is likely to make its way onto the Internet in the future (Katsaros, 1994). Secondly, the Internet, and more particularly the WWW, is becoming an instrument in business marketing and publicity efforts (Cronin, 1993; Hearn *et al.*, 1994; Yates, 1995; Young, 1995b). Lastly, many services, including accounting databases and electronic publications, are restricted to subscribers, or are accessible only on a fee-paying basis (Krumenaker, 1994; Kane, 1995).

Commercialisation has changed the nature of the Internet and has implications for education, particularly in terms of affordability, although the quality of Internet information, including that related to accounting, is likely to improve with commercialisation (Demery, 1995; Kent, 1995). The growing commercialisation of the Internet opens up a new realm for commercial exchange, the conduct of

accounting transactions (through EDI), commercial strategic positioning, and corporate environmental scanning. The Internet represents a new interface between accountants, decision makers, organisations, and governments.

Distance education students, especially those not employed in accounting positions while undertaking their studies, may thus be able to feel more fully a part of the accounting and commercial environment through the hands-on experience offered by Internet interaction. There is evidence to suggest that exposure to the business environment, either through first-hand experience or through other means, such as reading the financial press, offers graduate accounting students a perspective which enriches their understanding and performance in accounting studies (Moses, 1987). The Internet also has obvious potential for exposing accounting students to a more holistic world-view of their discipline, and to focus their attention on accounting in international, multinational, and cross-cultural contexts.

The benefits of employing Internet technology and resources in distance education in accounting

Collectively, utilising Internet technology and services offers a number of benefits to distance education students in accounting, related to all aspects of the learning and communications processes, and the interrelationships between them (table 2).

Table 2. Benefits of Internet usage in accounting studies via distance education

- LEARNING
  - assist students in their accounting research efforts
  - promote collaborative efforts and teamwork among accounting student cohorts
  - assist distance education accounting students in acquiring and developing generic competencies, such as computing, communications, interpersonal and research and library skills
  - expose students to, and enable them to keep abreast of current developments in accounting practice and in the business and commercial environment
  - improve distance education students' access to a variety of accounting resources, including, but not limited to, electronic subject and course-based instructional materials
  - provide new and innovative learning experiences for distance education students
  - allow students to complete and submit assessment tasks electronically
- COMMUNICATIONS
  - maintain contact with teachers and fellow distance education students in accounting and in other discipline areas
  - facilitate communications between accounting students enrolled in part-time, full-time, distance education, and off-shore modes
  - provide a forum for distance education students to debate accounting issues
  - improve the timeliness of feedback to distance education students
  - reduce the costs associated with communications and information access borne by distance education students

Concluding remarks

The listings of benefits of Internet usage in accounting studies via distance education (table 2) are by no means complete. As the Internet continues to expand in scope, capability, and sophistication, accounting scholars will increasingly recognise and utilise its potential for information gathering and information dissemination in educational contexts. This growth will also advance and redirect aspects of the accounting education and research agenda. Students and academics will address new accounting-related phenomena unleashed by the Internet, and will have opportunities to develop and apply new and innovative teaching and learning strategies which acknowledge and take advantage of the potent capabilities of the Internet.

The extent to which the Internet will be utilised within the context of accounting education at Charles Sturt University, and at other institutions, will depend upon the willingness of students and academics to embrace this new information technology, and to employ it appropriately, while recognising its distinctive limitations.

Acknowledgements

The author gratefully acknowledges the contribution of Mark Bisman who worked on finding and downloading much of the Internet material discussed in this paper, and supplied technical details concerning various aspects of information technology and the Internet. The author is also thankful for the suggestions and encouragement offered by participants at the Schools of Accounting and Marketing and Management Commerce Research Seminar held on December 13, 1995 at Charles Sturt University, Bathurst.

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[1] http://www.cern.ch

[2] http://www.ncsa.uiuc.edu/SDG/IT94/Proceedings/Educ/perron/perron.html

[3] Gopher to sol1.solinet.net

[4] http://www/lib.washington.edu/~tdowling/libweb.html

[5] http://www.lights.com/hytlenet
http://www.cam.ac.uk/Hytelnet/index.html

[6] http://www.csu.edu.au/division/library/catalog.htm

[7] Infoseek at http://wwww2.infoseek.com
Lycos at http://www.lycos.com
Web Crawler at http://webcrawler.com
Yahoo at http://www.yahoo.com

[8] http://anet.scu.edu.au/anet

[9] **http://anet.scu.edu.au/raw/aaa/aaa.htm**
Gopher to:
cwis.usc.edu:70/11/University_Information/Academic_Departments/Business_Administration/Research/AAA_Meeting/Papers

[10] http://www.bham.ac.uk/EAA/eaa95/detprogtopic.html

[11] http://www.kentis.com/ib.html

[12] http://www.kentis.com/cparefgd.html

[13] http://www.hbsp.harvard.edu/welcome.html

[14] http://www.k2e.com/~k2e/hotlist.html

[15] http://www.ozemail.com.au/~glillicr/ascpa.html

[16] KPMG (Australia) at http://www.kpmg.com.au
KPMG (Canada) at http://www.kpmg.ca
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Price Waterhouse at http://www.pw.com
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[17] http://www.telegraph.co.uk

[18] http://www.ozemail.com.au/observer

[19] http:/www.cni.or/CNI.hompage.html

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[21] http://journal.com/ssep/am.html

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Students' commitments to attend residential schools

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Abstract

The participants of the 1995 residential school for subject PKM 266 were asked to furnish information on the costs incurred in attending the residential school. The key findings are that the costs of the residential school, travel and accommodation, are borne by the student. While employers pay for travel in a minority of cases, they tend to support the student by providing them with special leave.

Introduction

Distance education has been seen by politicians and university educators alike as the medium to introduce equity in tertiary education and allow mature-aged students a (re-)entry into the tertiary education sector. At the same time, however, concerns have been expressed about the costs involved in attending the residential schools required (MASC 1995), thus creating pressures to revisit the concept and to reassess whether residential schools are needed at all.

In order to explore new avenues of future delivery of content usually provided in the form of a residential school, there is a need to assess the impact of residential schools on the students in the Parks Management course at CSU. Currently students attending residential school make a commitment both in financial terms and by potentially sacrificing annual vacation periods.

The course and the subject

Cultural Resource Management (PKM 266) is a compulsory (core) subject in the parks management degree offered in Spring internal and distance mode by the School of Environmental and Information Science, Faculty of Science and Agriculture (Albury Campus). The Bachelor of Applied Science (Parks, Recreation and Heritage) has a high reputation in the industry and is the preferred degree for parks rangers and local government parks management staff. First preferences regularly far outstrip the available quota. CSU is the major service provider for Queensland's Department of Environment and Heritage, and official service provider for the NSW National Parks and Wildlife Service.

The questionnaire

The questionnaire was presented during the last day of the 1995 residential school for the subject PKM 266. The completion of the questionnaire was voluntary. It was anonymous and consisted of 12 questions with selected preset options (eg 'Did you come by: "own car", "shared car", "bus", "train", "plane".') plus two open-ended questions.

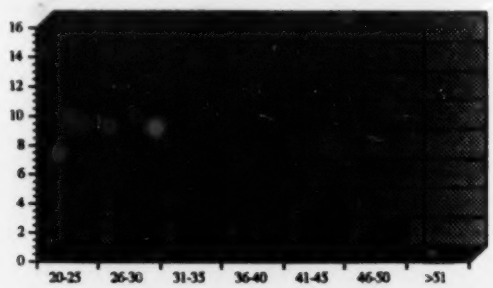

Figure 1. Age grouping of the student population answering the questionnaire.

The sample student population

Of the 77 students attending the residential school, 53 (68%) answered the voluntary questionnaire. Of these respondents, 39 (73.6%) were of males and 14 (26.4%) were of females. The age distribution (figure 1) shows a linear decrease with a peak among the 30-35 year-old category. The average of *all* residential school attendees is 29.7±6.9 years.

Table 1 shows the state of origin of all students (n=77) attending the PKM 266 residential school (data based on attendance records). As can be seen, the bulk of students come from Victoria.

Table 1. State of origin of the sample student population

State	n	%
Queensland	9	14.5
New South Wales	22	35.5
ACT	1	1.6
Victoria	25	40.3
South Australia	0	0.0
Western Australia	0	0.0
Tasmania	3	4.8
Northern Territory	2	3.2
Total	62	99.9

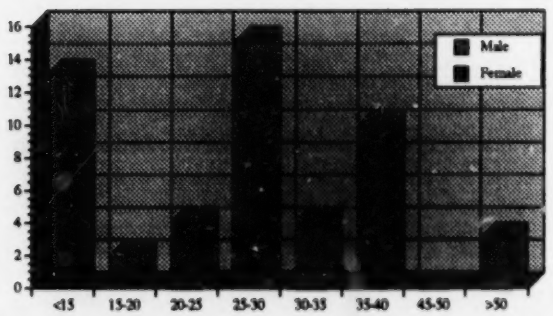

Figure 2. Annual income (in $ '000) of the student population answering the questionnaire

The annual income of the student population queried is varied. There are a large number of students with an income under $15k. The greatest number of students have an income between $25k and $30k, followed by those earning between $35k and $40k. The income distribution is more skewed if we look at gender. The majority of female students belong to the low income group.

The income distribution among the male students is uneven, suggesting that there are three different groups represented. There is no direct correlation between the age of students and their income group.

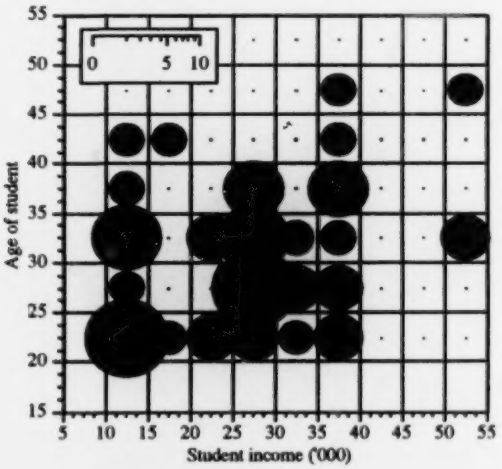

Figure 3. Correlation between age and income

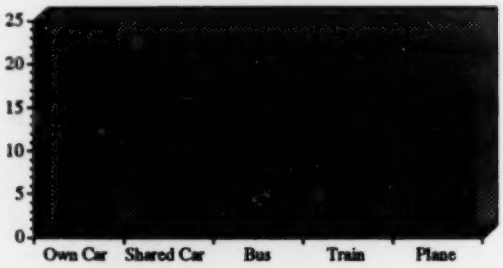

Figure 4. Mode of travel to residential school

Travel and accommodation

The mode of travel to the residential school was mainly by private car, followed by plane and train (figure 4). However, the distribution of the travel distance is not correlated to the mode of travel. Rather, students seem to prefer whatever the distance to travel by their own car (figure 5).

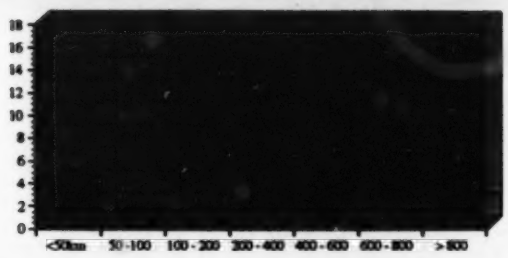

Figure 5. Distance travelled by students to attend the residential school in Albury.

The vast majority of the students stay in motels (figure 6) rather than tents (none), with friends, or in cabins/caravan parks.

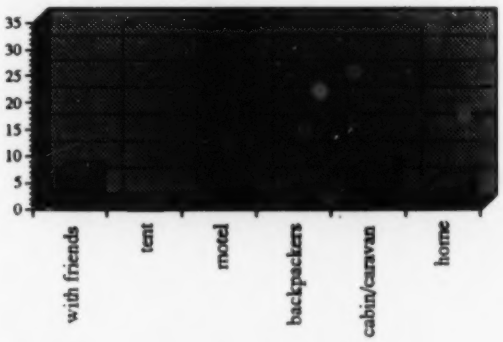

Figure 6. Choice of accommodation during the residential school

The costs incurred

The financial commitments incurred for travel, accommodation and food expenses showed a wide range, as well as large variation, as exemplified by a standard variation, which in the case of travel is larger than the mean (table 2).

Table 2. Expenditure for travel, accommodation and food during residential school attendances.

Component	Mean ± St. Dev.	Range
Travel	$224.50 ± 267.87	0-1200
Accommodation	$175.49 ± 103.87	0-400
Food	$115.58 ± 55.22	30-240
Total	$474.95 ± 334.90	0-1390

The greatest single cost is the travel, even though combined expenditure for accommodation and food is greater than that of travel alone. However, care needs to be taken not to overemphasise these statistics. Looking at the distribution histogram (figure 7) it becomes evident that a few outliers in the travel category create variations.

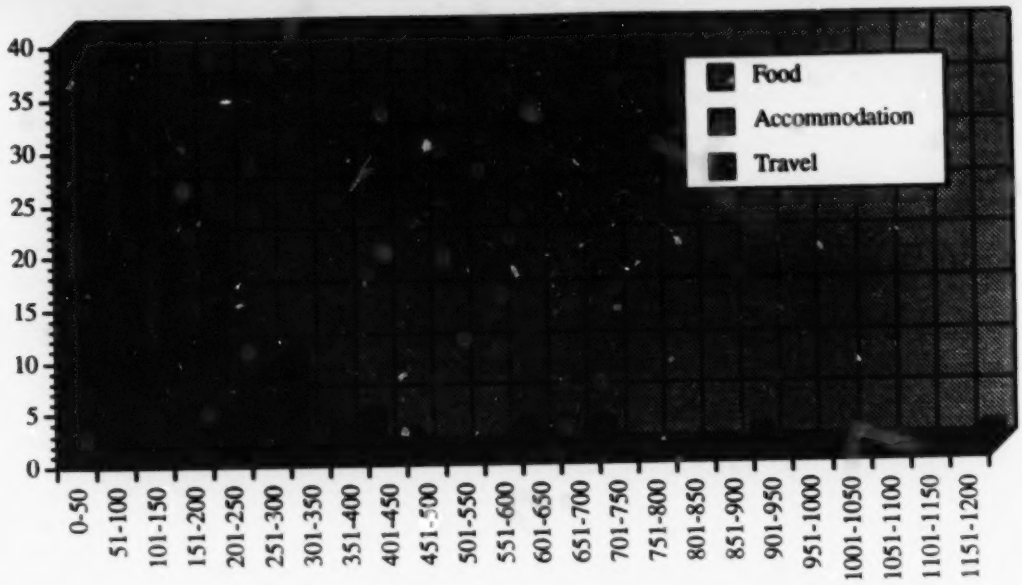

Figure 7. Distribution of expenditure for travel, accommodation and food (in $) by students attending residential school.

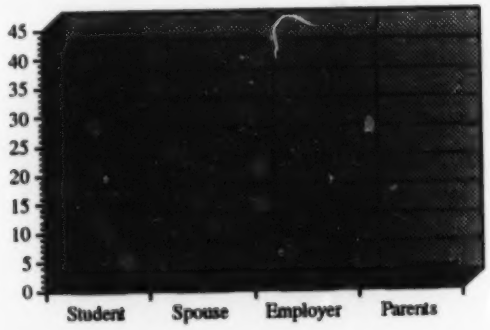

Figure 8. Financing the residential school attendance: travel

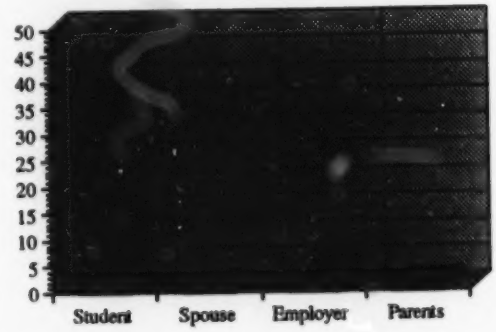

Figure 9. Financing the residential school attendance: accommodation and food.

Who pays?

Any changes to the residential school structure and duration are set to impact on the students. The key question, therefore, is who pays for the expenditure incurred in attending the residential school? Figures 8 and 9 clearly demonstrate that the costs for the residential school attendance, both travel and accommodation/food are

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largely borne by the students. In the case of travel, approximately 20% of attendances are paid or reimbursed by their employers or by other agencies such as ABSTUDY. This differs from the payments/reimbursements for accommodation expenses.

There is no direct correlation between student income and the expenditure for the residential school (figure 10), suggesting that the need to attend residential school cuts across the economic capacity of the students. It also implies that the economic burden is unevenly distributed.

Whilst employers might not fund the travel or accommodation for the residential school, in many cases they provide time off work in the form of special leave. This notwithstanding, the majority of students make a commitment to attend residential school by using up annual leave, taking leave without pay, or by rescheduling work.

82% of all respondents attended a residential school other than PKM 266 during the same visit to Albury. Most of the students stayed for eight days, with a few staying as long as two weeks.

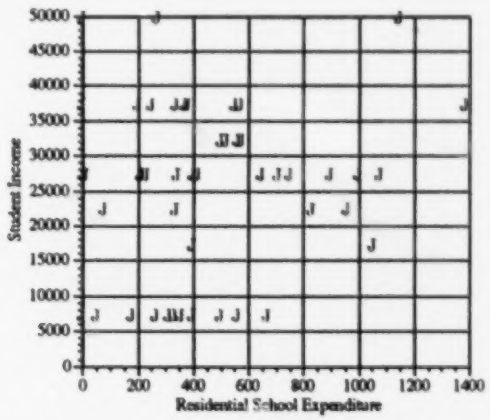

Figure 10. Correlation between student income and residential school expenditure

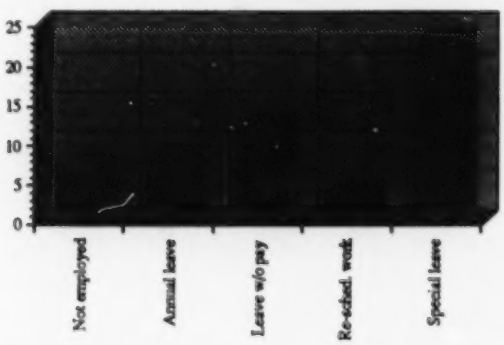

Figure 11. Financing the residential school attendance: time off work

Some implications

This study has a number of implications:

(i) the high travel costs are caused by the large geographical 'catchment' of the student population. Care needs to be taken that students continue to perceive the residential school attendance worth the travel expenditure;

(ii) any approach to changes to residential school structure needs to take into account the diversity of student income by age;

(iii) the large variations of expenditure, as well as the high cost of travel, imply that a reduction of the residential school to three or even two days does little to reduce the overall costs of the residential school; and

(iv) the observation that students attend more than one residential school at a time tends to indicate that the travel costs, per residential school need not be that high over all. However,

(v) the results of this questionnaire need to be treated with caution in order to avoid simplistic interpretations.

II. Desirability of residential schools

In addition, I will concentrate on the following open-ended questions:

> should the res[idential] school be replaced by teaching tools (internet, video etc.) which could be studied at home?

and

> Other comments?

The attitudes of the students to replacing the residential school with other technology-based teaching aids can be grouped into responses in three main categories:

- retain residential schools
- replace residential schools; and
- replace in part or optional

Overall trends

Some of the respondents answered the question with a straight 'yes' or 'no'. In addition, some of the respondents added comments, which allow one to determine their view whether residential schools should be replaced with technology-based home study options or not. The following trends emerge (table 3).

Table 3. Students' view on the future or residential schools (r.s.).

Opinion	Males	Females	Total
Retain r.s.	17	9	26
Replace r.s.	10	1	11
Replace r.s. in part	5	3	8
Optional r.s.	1	2	3
Total	33	15	48

Among the males 51.5% are outright against the removal of residential schools, while 30.3% are fully in favour. Among the female students only 6.7% are fully in favour, while 60% are fully opposed. Other data (Spennemann in prep) indicate that the differential between men and women is likely to be caused by a general distrust of computer-mediated-learning over face-to-face instruction.

Table 4. Issues identified by the student population (multiple answers possible).

Issue	n
People interaction vital	24
Face to face contact valuable	20
Res schools be replaced by technology	8
Optional school with video technology	6
Field trips irreplaceable	4
Video as an accessory tool	3
Alternate tools useful	2
Consider compaction of res schools	2
Res schools irreplaceable	2
Optional school with internet technology	1
Audio as an accessory tool	1
Some teaching aid possible	1
Improve group interaction	1
Residential school should be optional	1

Only three of the 48 respondents who furnished comments volunteered the development of optional residential schools. This would allow accommodation of the needs of both those who would like to see the residential school abolished and those who would like them to be retained.

Face to face interaction

Students commented on the importance of the face-to-face component of residential schools, both the interaction between the student and the lecturer, and the interaction
with other students. The number of responses on these two points closely indicates that the removal of the residential school is set to impoverish a student's learning experience. Comments such as these exemplify the issue:

> Although these resources would enhance the course they could not replace the interaction with lecturers, students, etc. Although res schools are expensive they are definitely worth it. If schools could be conducted in Qld etc that would be a bonus. (Male, 36-40)

The benefits of the personal and face-to-face feedback is stressed in other students comments:

> Res school helps in the fact that there is feed back between lecturers and students, also between students and students, actually 'experiencing' what you are learning is beneficial. (Male, 20-25)

> Res school should not be replaced by teaching tools which could be studied at home. Res school is important for networking, getting to know your lecturers, using the library, motivation to continue studying, field trips with someone who knows what they are talking about. (Female, 26-30)

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and:

> No. There is no substitute for even this level of personal contact. (Male, 20-25)
>
> For me, no other teaching tool can replace the residential school. (Male, 26-30)
>
> No, nothing replaces hands on experience. (Male, 20-25)

The costs of attendance

On the hand, the cost is of concern to some students:

> Yes, as some of us can't afford to come to res school. Res school should not be compulsory. (Female, 20-25)
>
> This is the first year that my employer is paying. For the last 2 years I have spent a $5000.00 per year on study - mainly due to the cost of res school. Airfares for this res school cost $1200.00. (Male, 26-30)
>
> No. However video-audio tools would definitely be useful as an accessory tool. (Student, 41-45)

In contrast to these statements we need to see sentiments such as the following:

> Yes, but technology used should be available to all so that nobody is disadvantaged. Residential schools have some value but not in proportion to the high cost of attendance. (Male, 31-35)
>
> Yes, if possible without detracting from the course content. (Male, 31-35)
>
> Internet or video (the latter more convenient at present) would be helpful in that it may be structured around work. (Male, 20-25)

Optional residential schools

One option is to remove the need for the residential school from some subjects, but not from others. While some of the filed-based material cannot be supplanted, some can be substituted by video footage.

However, comments such as the following should indicate caution:

> ..... despite the time and initial expenses involved, the value of personal contact with lecturers and other students is invaluable and could not be replaced by using other teaching tools. I have had subjects where there was no residential school, and found that the lack of personal contact resulted in lower results, and less overall satisfaction with the subject. (Female, 41-45)

At present, economic hardship or not, attendance is compulsory. Whilst it does disadvantage many students in an economic sense, it does ensure that educationally, at least, there is equity.

If a residential school would be made optional, the content of the residential school needs to be such that non-attendance does not unduly disadvantage those who would like to attend but who cannot afford it because of financial reasons.

A problem is posed for those students who rely on the personal communication with the lecturer, but who cannot afford the time off work or the costs of residential school attendance. With a compulsory residential school employers have helped out and given time off work and/or carried some or all of the costs of the school attendance.

Once the residential school becomes an optional arrangement, this may no longer be the case.

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Computer information technology survey for the School of Agriculture

Dr Gavin Ash
(Chair, School of Agriculture Advisory Committee)

Abstract

The School of Agriculture Computer Advisory Committee was requested by the School Board to develop a plan in respect to increased computer literacy in students enrolled in courses within the School of Agriculture. To this end it was deemed necessary to determine the present level of staff and student computer usage within the school. Staff and internal students in first year agriculture, equine science, horticulture, winegrowing and wine science and third year agriculture and equine science were surveyed in 1995. The results of those surveys, a survey of students commencing in the School of Agriculture in 1996 and an audit of the present hardware within the School are presented below.

Staff Computer Usage

Table 1 shows the computers in use in the School in February 1995 and details of the processor, hard drive size and memory. Since this audit additional computers have been purchased by the School. Additionally, the computers in the Engineering annexe have been upgraded to 486SX machines. The existing machines will be allocated to an Equine Science lecturer, two machines will be allocated to technical staff and the remaining machines used for spare parts.

The survey that was performed in 1995 included those staff members who have now moved to the School of Wine and Food Science. It indicated that most members of staff had access to computers at work and at home and that the majority of machines had a 386 processor or better (Table 2). From Table 3 it can be seen that the staff used computers primarily for word processing and access to electronic mail. Frequent use was also made of Excel and SIS. Banner, Netscape, statistical packages and graphics packages were used less frequently.

Undergraduate Student Computer Usage

All undergraduate students had adequate access to computers at University (nearly 100%) and approximately 50% on average had access to computers at home. Most PC's used by students were IBM compatibles and most had a processor of '386 or higher. First year students beginning in 1996 indicate a fair degree of computer literacy with over a third indicating that they will have their own PC at university (Table 5). Most students accessed computers at home or at the Jack Cross Centre (Table 6). Only a very small number accessed computers in the School. Students also have access to a wide variety of peripherals including laser printers and CD Roms (Table 7). This is especially evident in the Wine Science/Viticulture students.

From examination of Tables 8 and 9 it can be clearly seen that students are primarily using computers for word processing (especially the third years).

Subjects with Computer Usage

Figures 1 to 5 show the usage of computers within subjects by students and the frequency of subjects within years where computers are used in the subject by the lecturer(s). Within the third year group (Agriculture and Equine Science), there were only 4 subjects in which more than 20% of students recorded using computers. Staff on the other hand, recorded that computers were used in 15 of the 46 subjects offered, indicating that 50% of subjects in third year included some computer usage. Of the first year subjects, students in all groups recorded the highest usage of computers in Chemistry (a subject not taught in the School). Another point worth noting is that there is only one subject within the School in first year that formally incorporates computing (Soil Science) although some subjects include computer demonstrations.

Availability of Computing Subjects in Other Schools

- Computers in Agriculture.(ITC184) - 4 subject points.
  An introduction to the use of spreadsheet, word processing and database applications on microcomputers for students with no previous experience in the applied use of microcomputers.

- Understanding and Using Computers (ITC182) - 8 subject points.
  Introduces computer technology, and the use of application software such as word processing , spread sheeting, data management and graphics. Hands-on use of software on appropriate computers is a feature of this subject. There are course based components for some courses.

Programs on the Web

Uniserve Science has a catalogue of programs available on the web at its website *http://www.usyd.edu.au/su/SCH/publications.html*.

Most specialist areas have websites that may have useful information for students.

Summary

- Staff and student access to computers is adequate.

- An obvious point from the questionnaires is that staff are mainly using computers for word processing and other low level tasks.

- Students also are using computers mainly for word processing.

- Both staff and students perceive the need for better computer literacy in the student cohort.

- Few subjects seem to incorporate computers effectively.

- There are few first year subjects with a computing component.

Recommendations

- Students should be encouraged to enrol in typing courses held through adult education or TAFE. This could be part of their off-campus Prac Ag.

- To improve the computer literacy of students a subject (or part of a subject) should be introduced in first year, preferably in first semester, to the Agriculture and Equine courses.

- This should be reinforced throughout the course by the relevant use of computers in all years of the degree. At present there is a low level of computing in the early years of the degree and usage is at a basic level.

- A workshop should be held to examine the incorporation of computing into individual subjects within the degree and to determine the need to produce degree specific packages through the use of OLI resources.

- There should be more training of staff in the effective use of computers. Staff have good access to computer facilities but their skills need upgrading.

Table 1: Computers in use in the School of Agriculture in February 1996.

Room number	Occupant	Processor	Hard Drive	RAM	Windows	Dos
114	Lecturer	386 DX	200	4	3.1	6.2
107	Lecturer	P60	400	8	3.1	6.2
112	P/Grads	486SX	40	4	3.1	5
112	P/Grads	386SX	40	4	3.1	6.2
122	P/Grads	386DX	100	4	3.1	6
106	Lecturer	486DX	42	8	3.1	4.01
172	Lecturer	486DX	405	8	3.1	6
102	Lecturer	P60	400	8	3.1	6.2
174	Lecturer	486DX	533	8	3.1	6.2
175	Lecturer	486DX	405	8	3.1	6.2
189	Lecturer	486DX	42	4	3.1	5
PGA	P/Grads	386DX	40	4	3.1	5
PGA	P/Grads	486SX	202	4	3.1	5
41	Support Staff	486SX	202	4	3.1	6.2
Office	Support Staff	486DX	533	8	3.1	6.2
Office	Support Staff	386DX	40	4	3.1	5
HOS	Lecturer	386SX	40	4	3.1	6.2
149	Support Staff	486SX	202	4	3.1	6.2
161	Lecturer	486DX	250	8	3.1	6.2
191	Lecturer	486SX	115	4	3.1	5
190	Lecturer	486DX	533	8	3.1	6.2
157	Lecturer	486SX	161	4	3.1	5
150	Lecturer	486SX	202	4	3.1	6.2
133	Lecturer	486DX	326	8	3.1	6.2
112	Lecturer	486DX	115	8	3.1	6
112	Lecturer	386SX	202	4	3.1	6
111	Lecturer	P100	810	16	3.1	6.22
EPC	Lecturer	486SX	100	4	3.1	6

Table 2: Access of staff to computers at home and at work.

	None	Don't Know	8086	8286	8386	8486	Pentium	Mac	% Access
Work	2	0	0	0	10	14	2	1	93
Home	5	0	0	1	8	12	1	1	82

Table 3: The frequency of the use of computer packages by staff in the School of Agriculture

Packages-Staff	never	sometimes	frequently	daily
Works	19	3	0	0
Word	3	3	3	20
Access	16	2	2	0
Excel	3	8	16	2
Statistics	13	7	4	0
Graphics	9	12	5	0
Drawing	12	11	0	0
GIS	21	0	0	0
P-mail	0	1	9	19
SIS	3	3	19	3
Banner	19	5	1	0
Library	7	11	10	1
FTP	5	9	4	0
Netscape	5	13	6	1
HTML	20	1	2	0

Table 4: Access of students of the School of Agriculture to computers at home and at work.

At Home	None	Don't Know	8086	8286	8386	8486	Pentium	Mac	% Access
Viticulture/Wine Science	15	1	2	0	3	8	0	2	52
Equine Science	4	2	0	0	4	3	0	1	71
Horticulture	7	0	0	0	1	2	0	1	36
Agriculture (year 1)	13	2	2	1	2	3	0	2	48
Agriculture (year 3)	4	0	1	0	1	3	0	0	56
At Uni									
Viticulture/Wine Science	1	4	2	2	0	12	7	6	97
Equine Science	0	7	0	0	4	1	0	0	100
Horticulture	1	3	0	0	0	5	1	1	91
Agriculture (year 1)	0	7	1	0	6	6	0	2	100
Agriculture (year 3)	0	7	0	0	4	1	0	0	100

Table 5: O'Week Student Survey: Computer Experience (1996)

	Agric.	Equine	A. Hort.	School
I own or have access to a PC at home and I can use it independently	47 %	26 %	33 %	39 %
I have used computers at home or school	36 %	48 %	33 %	39 %
I am not confident with computers and I need assistance	16 %	48 %	33 %	22 %
Total responses	36	15	3	54

In 1996 78% of new students indicated that they had some experience of computer use. The most common experience was word processing. The most confident users had a wide range of experience. Of the 54 total responses 20 (37%) indicated that they would have their own computer at CSU.

Table 6: Place where students accessed computers

Where	Home	Work	Uni CC	Agric. CC	Rels	Friends
Viticulture/Wine Science	7	2	13	2	2	8
Equine Science	7	0	3	0	0	2
Horticulture	1	0	4	0	2	2
Agriculture (year 1)	7	1	9	0	0	7
Agriculture (year 3)	5	2	2	1	1	2

Table 7: Peripherals that students had access to.

Peripherals	Laser	Dot Matrix	Inkjet	Colour	Scanner	Modem	CD Rom	Fax
Viticulture/Wine Science	20	8	7	3	5	7	16	6
Equine Science	3	3	3	4	0	3	5	0
Horticulture	5	2	2	0	1	1	3	1
Agriculture (year 1)	9	8	4	1	0	2	2	1
Agriculture (year 3)	1	3	1	0	1	1	1	1

Table 8: Use of computer software by first year students (1995).

Packages- First Years	never	sometimes	frequently	daily
Works	14	50	28	8
Word	13	55	30	3
Access	62	35	2	2
Excel	44	46	10	0
Statistics	94	6	0	0
Graphics	75	24	1	0
Drawing	49	38	13	0
GIS	97	3	0	0
P-mail	79	9	10	1
Library	40	39	22	0
Netscape	73	16	9	3

Table 9: Use of computer software by third year students (1995).

Packages- Third Years	never	sometimes	frequently	daily
Works	26	53	21	0
Word	19	24	48	10
Access	80	20	0	0
Excel	58	26	16	0
Statistics	94	6	0	0
Graphics	88	12	0	0
Drawing	65	35	0	0
GIS	100	0	0	0
P-mail	100	0	0	0
Library	19	33	48	0
Netscape	9	6	0	0

The term frequency in the following figures refers to the percentage of total respondents and/or subjects.

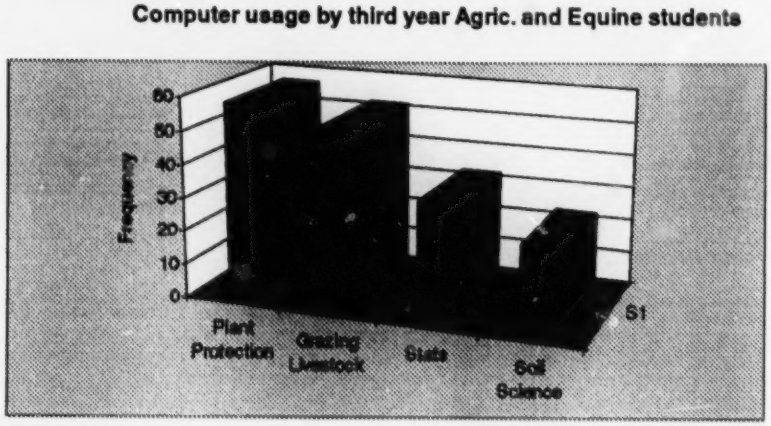

Figure 1: Computer usage by third year Agric. and Equine students

Other subjects include Water Resource Management (1), Engineering 2 (1), Exercise Physiology (1) and Stud Management (1).

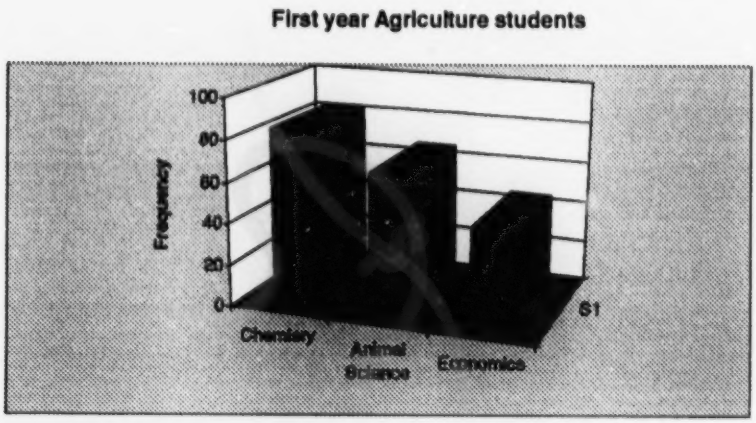

Figure 2: First Year Agriculture students

Other subjects include Extension (1) and Ag Systems (2).

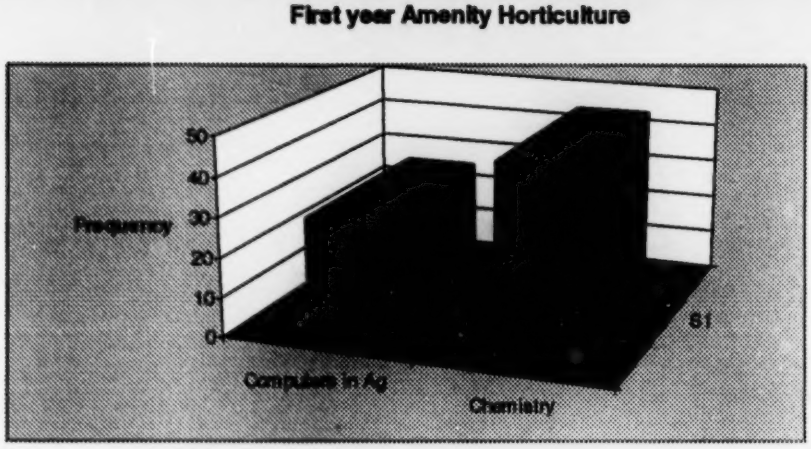

Figure 3: First Year Amenity Horticulture

Other subjects include Nursery Production (1), Plant Protection (1) and Soils (1).

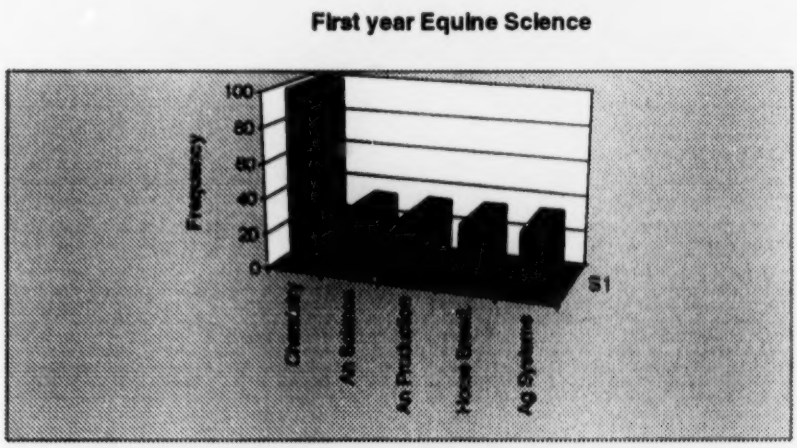

Figure 4: First Year Equine Science

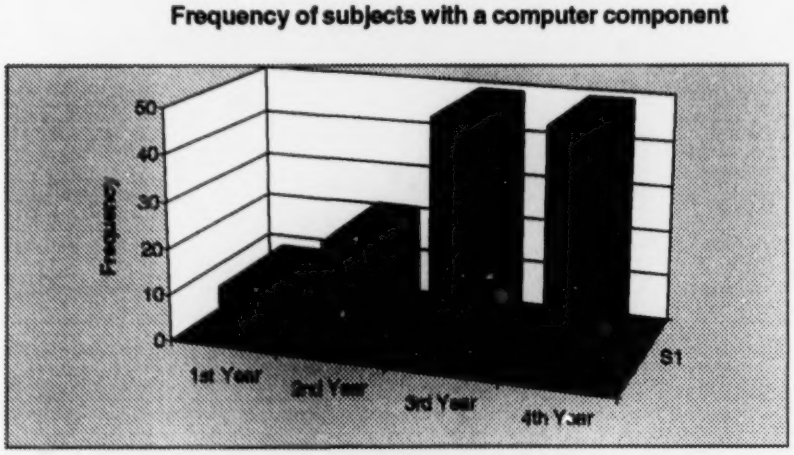

Figure 5: Frequency of subjects with a computer component

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Assessment practices at CSU

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Abstract

For many academics involved in the worlds of teaching, research and publication, there is rarely sufficient time to critically reflect on one's own assessment practices and the values that underpin them. The assessment practices that university teachers adopt are generally an indication of their own orientation to learning and teaching. This paper focuses on practical approaches that may enhance learning and teaching in a range of on-campus and distance subjects at Charles Sturt University.

Introduction

Given the fact that in most tertiary institutions assessment is an unavoidable reality, often with significant workload implications, the process can at times be simply reduced to devising the most efficient strategy to allocate accurate grades to students. The institutional requirement of documenting and grading achievement occurs within an academic tradition that is very familiar to academics because they have graduated successfully through this system. This means that in lieu of other forces for change many will tend to reproduce forms of assessment that they have been exposed to; after all, assessment is not a new phenomenon.

In the following table Kember (1992:140) presents a summary of assessment strategies that are commonly used in on-campus and distance subjects. Various combinations of these assessment activities, possibly coupled with a final examination, produce the final grade.

Table 1. Methods of Assessment

Assessment	Assessed	Advantages	Disadvantages
1. Traditional essay questions in combinations	Memory for facts Understanding of ideas Ability to organise material Ability to develop an argument Original thinking	Easy to set	Time consuming to mark Marking unreliable Poor coverage of syllabus Favours fast and fluent writers Limited feedback to students
2. Pre-set essay examinations	Same as for 1 Ability to use references in preparation Sustained reflection	More lifelike Produces better level of thinking	Same as for 1 More difficult to assess validity
3. Open-book essay examinations	Same as for 1. Use of reference skills	More lifelike. Reduces stress on memorisation	Same as for 1 Heavy emphasis on speed

Assessment	Assessed	Advantages	Disadvantages
4. Essay in continuous assessment	Same as for 1 Use of reference skills	Lifelike task if carefully set Reduces stress on memorisation	Same as for 1 Possibility of collusion, plagiarism or regurgitation
5. Short answer written questions	Memory for facts Understanding of ideas, theories	Broad coverage of syllabus Fast marking More reliable marking More feedback to students	Limited opportunity to show argument or originality
6. Multiple-choice questions	Memory for facts Understanding of ideas, theories	Fast marking Reliable marking Broad coverage of syllabus More feedback to students	Difficult to prepare without faults Cannot assess skills of organising or originality
7. Oral assessment of tutorial contributions	Oral fluency Assess reasoning behind personal thought Assess personal qualities	Flexible Useful to confirm other assessments More valid in subjects with oral component	Very time consuming Low reliability of marking Difficult to standardise questions 'Halo' effect introduces bias Favours extroverts
8. Practicals	Practical (manual) skills Application of principles	Only valid method for assessing such skills	Time consuming Low reliability of marking Difficult to standardise questions
9. Field work	Field work skills Application of principles	As for 8	As for 8 only more so
10. Project theses	Ability to plan original work Ability to seek relevant information Ability to develop an argument Ability to draw appropriate conclusions	Develops important skills in the student Reveals depth of thought	Difficult to assess objectively

Source: Kember(Rowntree): (1991: 140)

Various teaching and practical concerns influence the assessment options presented in this table including concerns about how to devise the total assessment strategy for best evaluating the aims and objectives of the subject, the subject content and nature of the discipline, the numbers of students enrolled, ease and consistency of marking and even designing safeguards against collusion and cheating. In many humanities subjects at CSU two major assignments and a final examination - or three assignments if there is no residential school - is a common approach; science based

subjects often incorporate a practical component and exercises which test knowledge of content.

Once a framework of assessment has been adopted, this is generally retained. Yearly revisions are used to delete, amend or insert new assignments along the same lines rather than dismantle the core assessment shell.

Values underpinning assessment

Martin and Ramsden (1992: 148) suggest that differences in how students learn subject matter can be related to how their teachers think about it and how they expect students to learn it. The assessment strategies one adopts then are often a reflection of one's orientation to learning and teaching.

The facts are however than many university teachers do not consciously articulate nor do they possess explicit statements about learning and teaching even though they may be successful practitioners. There are signs that this is changing in universities. The CAUT report (Ramsden *et al.*, 1995), *Recognising and rewarding good teaching in higher education*, recommends that a teaching portfolio be used as a principal source in documenting teaching competence when applying for tenure or promotion. Teaching staff at the University of South Australia for instance are asked to provide a statement of philosophy in their portfolios along the lines of a 'brief and lively account of the philosophy which informs all your teaching activities'(Ramsden *et al.*, 1995: 129). The EDU Report 1/96 for staff compiling a teaching portfolio at CSU, outlines provisions for statements of your primary goals as a teacher and a description of your approach to teaching including the range of assessment practices used.

In relation to assessment of students the CAUT (1995) report contains this section:

> *Teachers:* Can you justify the reason for your chosen assessment methods in relation to your objectives? How have they been linked to student learning?
>
> *Universities:* Why has the chosen range of assessment methods been used? How have they been linked to student learning?

In formulating assessment strategies Ramsden (1992:72) suggests university teachers are demonstrating to students what competence in a subject really means. For many students, especially those who adopt superficial learning approaches, assessment can become the *de facto* curriculum. Teacher's orientations to learning in part set the agenda of this hidden curriculum: at the subtextual level you may be indicating to students whether performance in this subject consists of memorising facts, reproducing material presented in lectures or study guides, showing evidence of original thinking, developing arguments, applying principles or developing and perhaps changing their own conceptions.

A broadly accepted way in which learning is understood in our society and indeed by many university teachers is in terms of knowledge acquisition and retention. Brown and Atkins (1988) identify the following characteristics which this orientation promotes in learners:

- adds to store of facts;
- builds repertoire of skills and procedures;
- breaks down problems into sub-units;
- works methodically and logically;

- **uses memorisation skills;**
- **makes links within units of knowledge; and**
- **uses systematic trial and error in problem solving.**

Another way of understanding learning is in terms of understanding and conceptual change. Learners who are exposed to this orientation exhibit the three following characteristics according to Atkins (1993: 339):

- a mastery of principles and concepts including the ability to apply them to an understanding of the 'real world'
- an understanding of the methods and tests for truth which a discipline uses; and
- an engagement with the societal contexts of the discipline, including associated ethical and moral issues.

In turning to one's own practice, the use of an assessment planning grid can be a useful guide with which to begin. Crooks (1988: 20) presents the following example of a planning grid for a test on biology but it is a relatively simple matter to devise one for any subject.

Table 2. Sample of a biology test assessment planning grid

Content Area	Recall Recognition	Skills Comprehension Application	Critical thinking Problem solving	Row total
Biochemistry	3	12	0	15
Cells/ Tissues	4	13	3	20
Genetics Reproduction	2	10	3	15
Invertebrates	4	6	0	10
Vertebrates	5	11	4	20
Plant life	2	6	2	10
Ecological issues	0	7	3	10
Column Total	20	65	15	100

The benefits of using such a grid are that it helps to ensure a balanced coverage of content and important skills; areas of neglect as well as areas of excessive emphasis are highlighted. The construction of this grid is, however, biased towards the first orientation of learning described above.

Another simple guide is to compile a column of aims and objectives of the subject being taught and then go down the column listing opposite each item how each is covered in assessment, whether it be in assignments, practicals or exams. The general focus is on identifying the assessment values which underpin your teaching.

Basis for innovative assessment strategies

For teaching staff interested in exploring a range of innovative assessment strategies the following statements drawn from Ramsden (1992) and Rowntree (1987) provide a theoretical starting point and they are based upon a recognition that:

- students should be clearly informed about the marking criteria used in assignments;
- it is worthwhile in certain contexts involving students in the assessment process;

- the importance of process, as distinct from product assessment, should be recognised in setting assignments;
- the construction of assessment activities that focus on understanding of concepts, disciplinary or professional processes of thinking is difficult; and
- it is always worthwhile exploring new ways to improve the quality of feedback;

In the following section a range of practical approaches to assessment will be presented, based principally on a cross-section of CSU subjects; and there will be a brief commentary on each sample linking it with the five theoretical statements above.

Practical innovations in assessment

Sample One — Presenting marking criteria

In an assignment on midwifery practice issues, Gray and Shackelton (1996: 16) include the following criteria in the subject outline:

> Marking criteria
>
> | | |
> |---|---|
> | Presentation of a discussion that presents relevant and recent information about this topic | **10 marks** |
> | A clear discussion on the role of the midwife | **10 marks** |
> | A clear discussion on the role and value of education | **5 marks** |
> | Presentation of the ethical considerations | **5 marks** |
> | Evidence of a well supported and logical discussion | **5 marks** |
> | Academic presentation i.e. spelling, referencing, reference list | **5 marks** |

Comment on sample one

There is little doubt that students in the early sessions of undergraduate courses and graduate certificates appreciate the inclusion of clear marking criteria such as in this sample. Distance students who may have had a long break since their previous involvement in formal study and are perhaps lacking in confidence acknowledge this in questionnaires. As they progress through their course structure and develop more sophisticated analytical and research skills, their need for such specific guidelines gradually diminishes. The content and structural/stylistic weightings in this sample provide helpful guides about where the focus should be directed in this assignment.

Sample two — Student involvement in assessment

Boeyink (1994) who teaches Journalism at IU Bloomington writes:

> One of my courses involves extensive peer evaluation of writing. Because we deal with controversial issues as well as personal writing style, I need an atmosphere where criticism is both constructive and hard-nosed. Obviously, I try to exemplify that balance in my own evaluations of their work. But I've found the real problem is giving students the freedom to be critical without taking personal offence.

To do that, I've adopted two strategies. First, I give students a piece of writing to criticise in class. Although I don't identify it, the writing is my own. It's also rather terrible: vague, undocumented, bloated with metaphors run amok. After they have had a chance to rip it apart, I find a way to let them know it is mine. I tell them how proud I was of that piece the day I wrote it. The messages are clear. If the instructor can take it in good humour, so can anyone else. And what we see as great writing may need some improvement after all.

Second, I organise the class into small groups of six. These groups - the place where the peer evaluation goes on - stay the same all semester. The students get to know each other well. They feel more comfortable criticising the writing and arguments of other group members. And they feel the constraint of friendship which ensures that criticism is constructive.

Comment on sample two

This sample touches upon the contentious issue of assessing individuals working collaboratively in groups, a difficult area because of the problems of distinguishing between individual contributions. It is an assessment innovation worth pursuing however, because as Boud (1986: 32) suggests 'whether as a student or as a teacher, each one of us has the capacity to provide useful information to other people which will help them learn more effectively'. Students graduating from the journalism classes in sample two are likely to possess a rich array of critical and interpersonal, professional competencies.

In assessing students working in groups Josephy (1986) notes that it is not necessary that the teacher comes to a decision on a particular occasion but that such a decision is reached over a period of time. Cox (1994: 88) notes that group assessment requires rigorous safeguards and that for more complicated objectives, considerable discussion and negotiation with students may be involved before and after assessment.

Sample 3 Assessing process

In the CSU subject outline for Wine Production 1 (WSC201), Birks' (1996: 8) assignment instructions read:

Each student will be required to make, and present for assessment, three 750 mL bottles of a particular table wine along with a final report detailing that wine's production.

The purpose of this assignment is to encourage you to relate the theory of table wine production to the practice of making a table wine.

The assignment item is divided into 3 assessable items - a proposed process plan, the finished wine and the final report.

The assignment instructions also comment that:

The final report is the most important part of the assignment and is marked accordingly. Success in this assignment is not necessarily governed by production of a high quality wine. NOTE: *Twice in recent years, the top mark for the overall assignment received the lowest mark for wine quality.*

Comment on sample three

This sample recognises that the process of how students learn and how they go about producing the final product may be more important than the finished wine. Rowntree (1987: 138) concedes that life is not so simple in the world of process but argues that any teacher who endorses process objectives as well as content objectives, can not afford to neglect process assessment. Reports, logs and journals are commonly used as self-reflective, evaluative tools to explore the interrelationship of theory and experience; they can also incorporate photographs, diagrams and sketches to comment on various process elements.

Sample four Use of case studies

Case studies have been used in some subjects for many years and the subject outline for the 1990 CSU subject INR4014 contains this extract about the Murray Campus Toy Company:

> Shortly before the troubles began, the painting operation had been re-engineered so that the eight process workers who did the painting sat in a line by an endless chain of hooks. The hooks were in continuous motion going past the line of workers and into a horizontal oven. Each processor sat in an separate painting booth so designed as to carry away fumes and to backstop excess paint. They would take a toy from the tray, position it in a jig inside the painting cubicle, spray on the colour according to a pattern, then release the toy and hang it on the hook passing by. The rate at which the hooks moved had been calculated by the engineers so that each worker, when fully trained, would be able to meet the standard and to earn a group bonus when they exceeded it.
> By the second month of the training period, trouble had developed.....

Comment on sample four

Analysis and discussion of case studies for assessment purposes can be used in a range of subjects including management, industrial relations and ethics. Case studies illustrate problem scenarios that can be dramatised and made very realistic and complex. They provide opportunities for students to analyse relevant issues occurring in work based contexts.

Sample five Computer simulation program

> A computer simulation program is being used by Ash (1996) for assessment and teaching in the CSU subject Plant Protection (PSC212). Vineyard management parameters are outlined on screen and students examine visuals of diseased grapevines that are at various stages of infection. The program assesses students competencies in disease management and involves skills of diagnosis, laboratory analysis, research and formulation of spray treatments to address specific problems encountered in vineyards.

Comment on sample five

The use of computer simulations for assessment obviously requires time and resources to develop. Early adopters of this technology have often been recipients of EDU, CAUT and OLI grants but with the CSU Technology Strategy gathering momentum, this is now an area that increasing numbers of subject coordinators might consider.

Atkins (1993: 339) comments that interactive computer technologies can:

> provide a simulation or microworld which rests on a model of relationships between variables, parameters and factors. But more than just providing the simulation, these interactive technologies allow the user to be given control over the key variables. It is then possible for users to make predictions about what will happen when the variable is altered, alter it, see what happens, assess their prediction, and get intrinsic feedback from the programme. Interactive technologies in other words, can be used to challenge learners' naive, partial and incomplete theories about how phenomena behave and force them to construct mental models of their own which better account for the results they are seeing in the simulation.

A cautionary note that Atkins (1993: 340) adds later is that there may be an element of artificial neatness and tidiness in the selection of material made by designers because simulations are in a fundamental sense contrived

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Sample six Assessment using the Internet

Samples of two CSU subjects - The Information Super Highway (ITC125) Atkinson (1996) and Introduction to Information Technology (ITC411) Eustace (1996) are worth examining using the following URL addresses:

http:\www.csu.edu.au\faculty\sis\gdasc\T_ITC411.htm
http:\www.csu.edu.au\learning\subjects/itc125/subject.htm

Comment on sample six

The content of these two subjects focuses on the Internet and information technology and so there is a certain logic in students developing competencies by using the technologies they are studying. While it is a natural sequence that early adoptions of these technologies occur in Information Technology subjects, there are other subject areas at CSU (Spennemann, 1995) that are using the Internet and this trend is likely to increase.

Sample seven Home examination

The instructions which Dunn (1995) includes in the subject outline for Extension (AGR220) are:

Assessment Item 3 - Home examination paper

Due date: 13 October 1995
Value: 50%

> The reason for a home examination is to find out how much you have learnt about important topics in the study guide but without having the pressure of a formal examination or the need to meet the rigour of a written assignment.

Some of the instructions which appear on the home examination paper posted to students are:

> Complete and return the paper within three days of receiving it and return it in the normal way to the Open Learning Institute.
>
> Allow yourself 10 minutes reading time and then do the paper in two and a half hours.
>
> This is an open book examination but heed the warnings I have already made about plagiarism and excessive reliance on your Study Guide and Readings.

Comments on sample seven

The following comments are a cross-section of questionnaire responses from six students enrolled in the subject in 1995:

> I felt a little more relaxed in a home environment than in an examination room. This allowed me time to concentrate.
>
> This is a more realistic means of examining knowledge i.e. in a workplace situation. One may have a timeframe in which to work but also have access to required resources.
>
> I liked the idea of completing the exam at a time suitable to myself.
>
> I felt there was not so much pressure put on me and so I feel I was able to do a better job on the exam. A downside to this is that without the pressure of an exam at uni I didn't study as I may otherwise have.
>
> It allowed me to put more time into studying for other subjects during exam weeks.
>
> Due to the nature of the exam (honesty system) and the nature of the questions, it was difficult to gauge how detailed the answers should be without consciously looking up answers.
>
> I know from fellow students that they have taken more time and written short essays for the questions.

Sample eight — Optional, convertible assignment

In the subject outline for Financial Accounting (ACC514) Anderson (1995: 6) presents this assessment option:

> In order to offer flexibility in choice of assessment patterns, students may choose to **not** submit Assignment task 2. In this case the marks allocated to the final exam will be adjusted accordingly. It will be assumed that when Assignment task 2 is not received by the due date that students will have made the election to increase the weighting of the final examination.

Solutions to Assignment tasks 1 and 2 will be sent to all students shortly after the due date.

Comment on sample eight

Some advantages arising from sample eight include:

- students have a choice but the subject content is still examined;
- student requests for extensions are not necessary;
- principles of open learning are addressed by recognising the context of some students whose work may sometimes make it extremely difficult to complete assignments within a certain period. Some CSU students studying viticulture and wine science for instance are heavily involved in vintage in Autumn session and appreciate such options; and
- in subjects with numerical answers to questions such as accounting and mathematics, marked assignments can be returned confidently, removing the former situation where those who may have been granted an extension could obtain access to a marked assignment.

Sample nine — Assignment feedback using technology

9a. In 1996 the School of Commerce has established an assignment feedback Internet homepage for students enrolled in the Master of Business (HRM) course. The URL address is:
http://www.csu.edu.au/faculty/commerce/manage/feedback.htm

9b. For a subject which has in excess of 350 students, teaching staff at Southern Cross University have developed unit proformas which incorporate an extensive inventory of possible responses that can be cut and pasted for individual assignments. Armstrong *et al.(1995)* report on continuing developments: a pilot project which used the Dbase *Clipper* to automate an assignment comment facility is being converted to a Windows based application using *Access* and *Visual Basic*.

Comment on sample nine

High quality assignment feedback complements substantial assessment practice but this can be time consuming. In sample 9a student access to the technology is an important concern and that is perhaps why the Master of Business course was initially selected. In addition to feedback, Millmow (1996) has also used the homepage to provide students enrolled in Labour Market Studies (HRM501) with some research tips to overcome difficulties encountered in assignment 2 where a number of problems locating material were reported.

In sample 9b Armstrong *et al.* (1995) surveyed on-campus and distance students about their responses to automated assessment proforma feedback. Some comments included:

* easy to follow - related to the structure of the assignment questions.
* the format is good as it tells us where we went wrong or did the right thing and sample answers allow us to see what we could have done.
* This is the most I've had from a tutor on all my assignments in the past two years.
  Comments do help point out mistakes I've made and what I missed in the content.
* Not all highlighted responses fit the assignment responses by the student.
* I felt the truncated answers were too short but understandable due to time.

Conclusion

This paper has focused on assessment practice, presenting a spectrum of strategies which are being used in a small number of subjects at CSU but which may have applications in other courses and faculties within the University.

Though based on a minimum of theory, the paper recognises the value of critically reflecting on one's own orientation to learning and teaching; more specifically, it recommends being aware of the intentions that undepin the choice of assessment strategies to enhance the quality of learning.

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